

REMARKS

1. Summary of the Office Action

In the office action mailed October 30, 2007, the Examiner rejected claims 1-4, 6, 7, 11-15, 18-30, 34-37, 45-47, 49, 50-54, and 55 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,962,566 (Quistgaard). The Examiner also rejected claims 31-33, 35, and 48 under 35 U.S.C. 103(a) as being unpatentable over Quistgaard further in view of U.S. Patent 6,251,073 (Imran), rejected claims 8 and 9 as being unpatentable over Quistgaard and further in view of U.S. Patent 6,488,625 (Randell), rejected claims 40-42 and 43 as being unpatentable over Quistgaard further in view of U.S. Patent 5,549,708 (Thorne), and rejected claim 44 as being unpatentable over Quistgaard further in view of U.S. Patent 4,596,256 (Ascher).

2. Status of the Claims

Presently pending are claims 1-9, 11-15, 18-35, and 40-55, of which claims 1, 46, and 49 are independent and the remaining claims are dependent.

3. Response to Rejections to Independent Claims 1, 46, and 49

A. Quistgaard fails to teach each and all of the elements of the claimed invention.

As noted above, the Examiner rejected independent claims 1, 46, and 49 under 35 U.S.C. §102(e) as being anticipated by Quistgaard. Quistgaard reference, however, lacks various elements of the claims. In order to establish anticipation of a claimed invention, the reference must teach or suggest each and all of the elements of the claim.

Specifically, with respect to claim 1, Quistgaard fails to teach an ultrasonic imaging system having a “two-dimensional transducer array” and a display unit that “lies in a plane that is substantially parallel to said two-dimensional transducer array,” wherein the image plane is “below the plane of the display”, which is depicted in FIG. 1A-1B, and 3A-3C (the image plane 3 is below the display 20). With respect to claim 46, Quistgaard fails to teach a method of imaging a target to produce ultrasonic images using a “two-dimensional transducer array” and forming “a C-mode image”. Quistgaard also

fails to teach the method of claim 49: imaging a target to produce ultrasonic images using a “two-dimensional transducer array,” wherein “the display unit is collocated with and is in substantial alignment with the two-dimensional transducer” and an image plane is located “underneath the two-dimensional transducer array and is in substantial alignment with the two-dimensional transducer array and the display unit”, which is depicted in Figure 1A-1B, 3A-3C, and 8A-9B (display unit 20 is in substantial alignment with two-dimensional transducer array 60).

Quistgaard merely discloses an ultrasound system having “a flat or curved linear array” or “a phased array” (Quistgaard, column 7, lines 7-8), and makes no mention of a “two-dimensional transducer array” or other various elements set forth in the claimed invention. More particularly, FIG. 2 of Quistgaard suggests a one-dimensional transducer array (transducer array 210). Examiner’s citation to Quistgaard, column 9, lines 25-26 as anticipation of a two-dimensional transducer array is therefore not well supported. Quistgaard merely suggests an ultrasound system operating in a 2D mode capable of producing two-dimensional ultrasound images (Quistgaard, column 8, lines 1-3, column 10, lines 48-49, and FIG. 2, block 242). Furthermore, Quistgaard merely discloses an ultrasound system for producing B-mode images or various images based on B-mode images (Quistgaard, Abstract, lines 8-9 and column 10, lines 48-49) and makes no mention of C-mode ultrasound images or whatsoever.

B. Quistgaard fails to teach an image plane in substantial alignment with the display unit.

With respect to claim 1, the Examiner rejected claim 1 under 35 U.S.C. §102(e) as being anticipated by Quistgaard. The Examiner cited Quistgaard, column 6, lines 31-38 and alleged that Quistgaard anticipates the element of “said display unit displays the image plane as a projection onto the plane of the display.” The Examiner’s citation, however, is unsupported since Quistgaard does not suggest that the image plane should be displayed as “a projection” onto the display.

Nevertheless, Applicants have amended claim 1 to better claim the invention. The amended claim 1 is now directed toward an ultrasonic imaging system having a display unit on a housing, “said display unit defining a planar region,” and generating an image corresponding to an image plane located below the plane of the display, wherein “said image represents a portion of said image plane that is in substantial alignment with said planar region of said display unit.” As depicted in FIG. 1A-1B and 3A-3B, display unit 20 defines a planar region and the image represents a portion of the image plane 3 is in substantial alignment with the planar region of the display unit 20. The claimed invention therefore creates a “sonic window” into the target. Quistgaard fails to teach all of the elements set forth in the amended claim 1. Therefore, the amended claim 1 renders the rejection moot.

C. Quistgaard fails to teach a method for producing C-mode ultrasound images.

With respect to claim 46, the Examiner indicated that it was rejected under 35 U.S.C. §102(e) as being anticipated by Quistgaard. The Examiner did not provide any reasoned statement or identify where the claim elements reside within the prior art reference. Nevertheless, applicants have reviewed Quistgaard and found no mention of a method for producing a C-mode image. Quistgaard merely suggests a method for producing a B-mode ultrasound image or various other images based on B-mode ultrasound image (Quistgaard, Abstract, lines 8-9, and column 10, lines 48-49). As well known in the art, C-mode and B-mode ultrasound images are substantially distinct from each other. As noted above, Examiner rejected claims 46. Similarly, the Examiner has not provided a reasoned statement as to the basis of the rejection of claim 49.

4. Response to Rejections to Dependent Claims

With regard to pending dependent claims 2-15, 18-35, 40-45, 47-48, and 50-55, of these claims, claims 2-15, 18-35, 40-45, and 48 are dependent from independent claim 1, claim 47 is dependent from independent claim 46, and claims 50-55 are dependent from independent claim 49. Therefore, Applicants submit that these dependent claims are patentable over Quistgaard for at least the same reasons that claims 1, 46, and 49 are patentable over Quistgaard.

5. Conclusion

Independent claims 1, 46 and 49 are therefore in condition for allowance. The remaining claims are dependent from claims 1, 46, and 49 and are allowable for at least the reasons set forth above. For these reasons, Applicant respectfully requests favorable reconsideration and allowance of all of the pending claims. Should the Examiner wish to discuss this case with the undersigned, the Examiner is invited to call the undersigned at (312) 913-3305.

Respectfully submitted,

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Date: January 30, 2008

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